

YAMAHA MX-460

Increased Low Impedance Drive Ability

2-Pair Speaker Drive Capability

Thank you for selecting this YAMAHA Stereo Power Amplifier.



OWNER'S MANUAL

CONTENTS

Safety Instructions	2
Caution	2
Warning	3
Connections	4
Front Panel Components and Their Functions	6
Troubleshooting	7
Specifications	7

IMPORTANT!

Please make a note of the serial number of this unit in the space indicated below.

Model:
Serial No.:

The serial number is inscribed on the rear of the unit.
Keep this Owner's Manual in a safe place for future reference.

WARNING

To reduce the risk of fire or electric shock, do not expose this unit to rain or moisture.



• Explanation of Graphical Symbols




The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

SAFETY INSTRUCTIONS

- 1 Read Instructions – All the safety and operating instructions should be read before the unit is operated.
- 2 Retain Instructions – The safety and operating instructions should be retained for future reference.
- 3 Heed Warnings – All warnings on the unit and in the operating instructions should be adhered to.
- 4 Follow Instructions – All operating and other instructions should be followed.
- 5 Water and Moisture – The unit should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
- 6 Carts and Stands – The unit should be used only with a cart or stand that is recommended by the manufacturer.
- 6A A unit and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the unit and cart combination to overturn. 
- 7 Wall or Ceiling Mounting – The unit should be mounted to a wall or ceiling only as recommended by the manufacturer.
- 8 Ventilation – The unit should be situated so that its location or position does not interfere with its proper ventilation. For example, the unit should not be situated on a bed, sofa, rug, or similar surface, that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
- 9 Heat – The unit should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.
- 10 Power Sources – The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.
- 11 Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.
- 12 Cleaning – The unit should be cleaned only as recommended by the manufacturer.
- 13 Nonuse Periods – The power cord of the unit should be unplugged from the outlet when left unused for a long period of time.
- 14 Object and Liquid Entry – Care should be taken so that objects do not fall into and liquids are not spilled into the inside of the unit.
- 15 Damage Requiring Service – The unit should be serviced by qualified service personnel when:
 - A The power-supply cord or the plug has been damaged; or
 - B Objects have fallen, or liquid has been spilled into the unit; or
 - C The unit has been exposed to rain; or
 - D The unit does not appear to operate normally or exhibits a marked change in performance; or
 - E The unit has been dropped, or the cabinet damaged.
- 16 Servicing – The user should not attempt to service the unit beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.
- 17 Power Lines – An outdoor antenna should be located away from power lines.
- 18 Grounding or Polarization – Precautions should be taken so that the grounding or polarization is not defeated.
- 19 Speaker Connection – To reduce the risk of shock or fire and prevent short circuits, strictly follow the instructions for connecting speakers on p.5.

CAUTION: READ THIS BEFORE OPERATING YOUR UNIT

- 1 To ensure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.
- 2 Install your unit in a cool, dry, clean place – away from windows, heat sources, and too much vibration, dust, moisture or cold. Avoid sources of hum (transformers, motors). To prevent fire or electrical shock, do not expose to rain and water.
- 3 Do not operate the unit upside-down. It may overheat, possibly causing damage.
- 4 Never open the cabinet. If a foreign object drops into the set, contact your dealer.
- 5 Do not place records or other objects on top of the unit; this will block the ventilation holes, cause the internal temperature to rise and may result in a failure.
- 6 Do not use force on switches, knobs or cords. When moving the set, first turn the unit off. Then gently disconnect the power plug and the cords connecting to other equipment. Never pull the cord itself.
- 7 Do not attempt to clean the unit with chemical solvents; this might damage the finish. Use a clean, dry cloth.
- 8 Be sure to read the "Troubleshooting" section on common operating errors before concluding that your unit is faulty.
- 9 Do not connect audio equipment to the AC outlet on the rear panel if that equipment requires more power than the outlet is rated to provide.

FCC INFORMATION (U.S.A.)

1 IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2 IMPORTANT: When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product **MUST** be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3 NOTE: This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices.

This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices.

Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Electronics Corp., U.S.A. 6722 Orangethorpe Ave, Buena Park, CA 90620.

The above statements apply **ONLY** to those products distributed by Yamaha Corporation of America or its subsidiaries.

WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the manufacture of this product contains LEAD. In addition, the electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

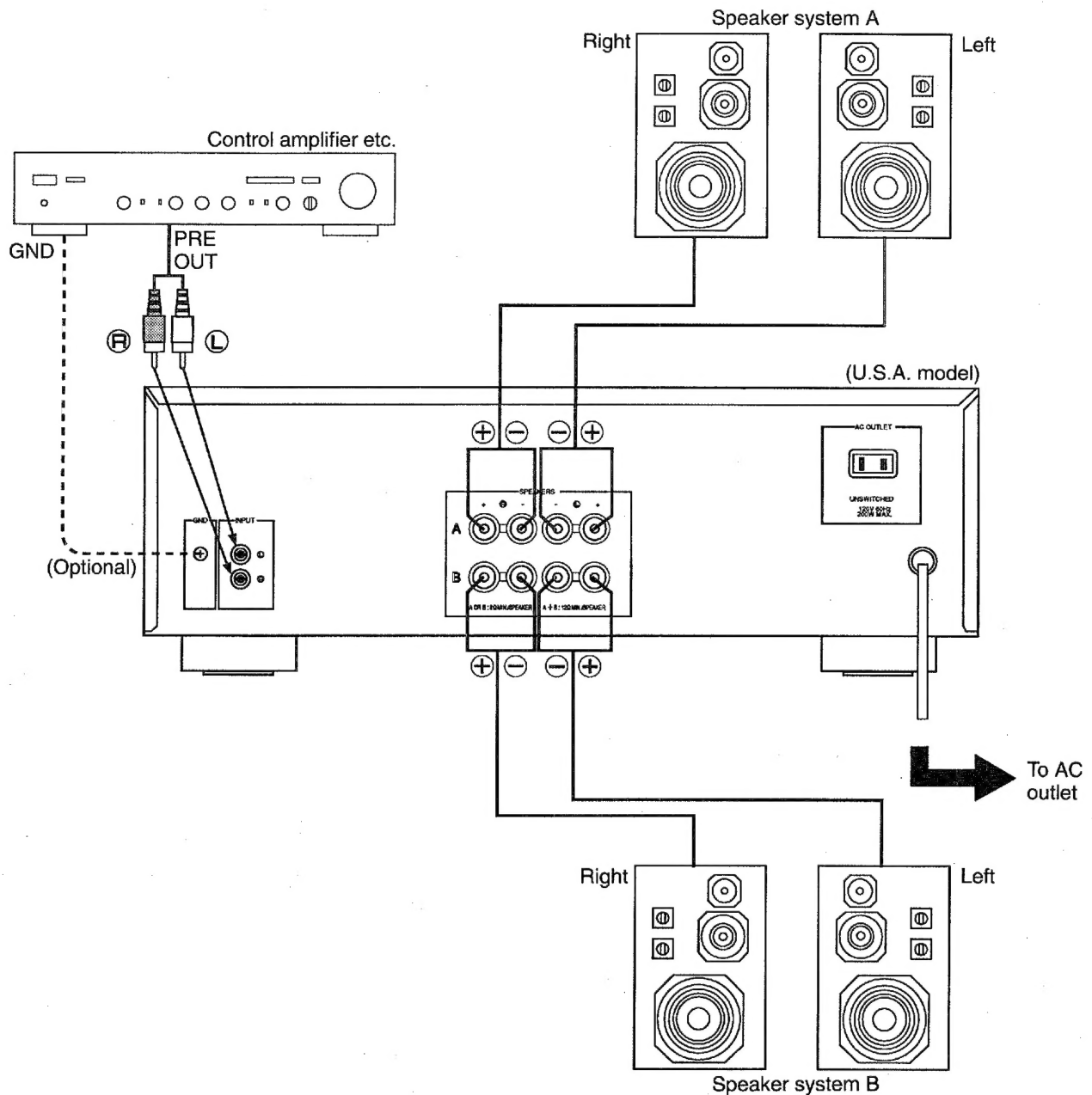
DO NOT REMOVE ANY ENCLOSURE COMPONENTS!

There are no user serviceable parts inside. All service should be performed by a service representative authorized by Yamaha to perform such service.

IMPORTANT MESSAGE: Yamaha strives to produce products that are both user safe and environmentally "friendly". We sincerely believe that our products meet these goals. However, in keeping with both the spirit and the letter of various statutes we have included the preceding messages and others in various locations in this manual.

CONNECTIONS

- Before attempting to make any connections to or from this unit, be sure to first switch OFF the power to this unit and to any other components to which connections are being made.
- When making connections between this unit and other components, be sure all connections are made correctly, that is to say **L** (left) to **L**, **R** (right) to **R**, “+” to “+” and “-” to “-”. Also, refer to the owner’s manual for each component to be connected to this unit.



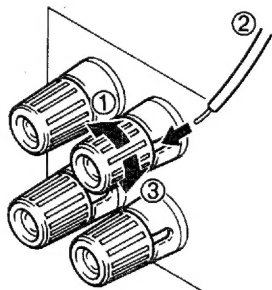
■ Connecting speaker systems

Connect the **SPEAKERS** terminals to your speakers with wire of the proper gauge, cut to be as short as possible. If the connections are faulty, no sound will be heard from the speakers. Make sure that the polarity of the speaker wires is correct, that is, + and – markings are observed. If these wires are reversed, the sound will be unnatural and will lack bass.

Do not let the bare speaker wires touch each other and do not let them touch the metal parts of this unit as this could damage this unit and/or speakers.

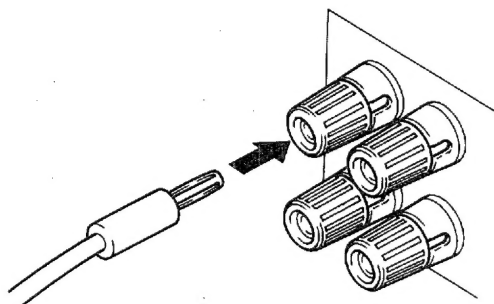
- One or two speaker systems can be connected to this unit. If you connect only one speaker system, connect it to either **SPEAKERS A** or **B** terminals.
- Use speakers with the specified impedance shown on the rear of this unit.
- **How to Connect:**

Red: positive (+)
Black: negative (–)



- ① Unscrew the knob.
- ② Insert the bare wire.
[Remove approx. 5 mm (1/4") insulation from the speaker wires.]
- ③ Tighten the knob and secure the wire.

* Banana Plug connections are also possible. Simply insert the Banana Plug connector into the corresponding terminal.



■ Accessory components on the rear panel

AC OUTLET (UNSWITCHED)

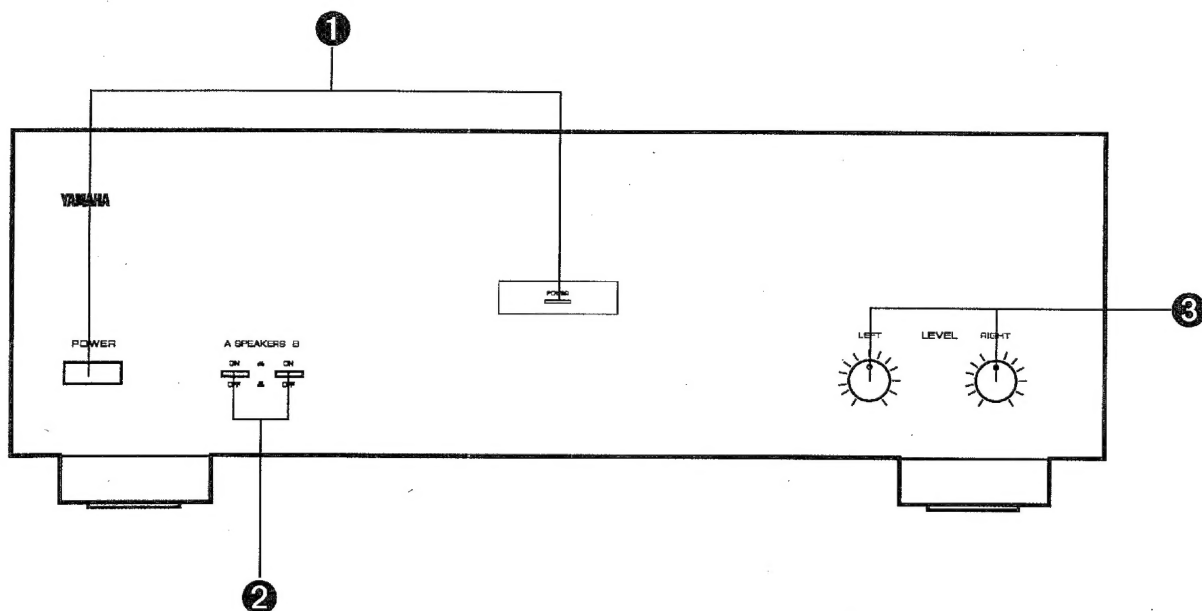
This unswitched AC outlet can be used for connection of the power cord from another audio component. Note that the power to that component is not affected by the ON or OFF setting of the **POWER** switch of this unit.

Note: The maximum power (total power consumption of components) that can be connected here is 200 watts.

Ground (GND) terminal knob

Make a connection between this terminal and the same terminal of the control amplifier if making the connection results in less hum or other noise.

FRONT PANEL COMPONENTS AND THEIR FUNCTIONS



❶ POWER switch/indicator (POWER)

Press this switch to switch ON the power. The indicator will illuminate while the power is ON.

Press the switch again to switch OFF the power. Note the following cautions.

- Before switching ON the power, be sure to set the volume control of the control amplifier to the lowest setting in order to avoid damage to the speakers.
- The speaker-protection circuit functions to mute speaker sound reproduction for a few seconds after the power is switched ON.

❷ SPEAKERS switches

Because one or two speaker systems can be connected to this unit, these switches allow you to select speaker system A or B, or both at once.

❸ Speaker level controls (LEVEL)

These controls adjust the volume level of the sound reproduced through the speaker systems connected to this unit. Turning a control clockwise increases the volume level from the speaker system(s) corresponding to that control. The **RIGHT** control adjusts the volume of sound from the right speaker system, and the **LEFT** control is for the left speaker system.

TROUBLESHOOTING

If the unit fails to operate normally, check the following points to determine whether the fault can be corrected by the simple measures suggested. If it cannot be corrected, or if the fault is not listed in the SYMPTOM column, disconnect the power cord and contact your authorized YAMAHA dealer or service center for help.

SYMPTOM	CAUSE	REMEDY
The power is not switched ON when the POWER switch is pressed.	The power cord plug is not connected securely to the wall power outlet.	Connect it securely.
No sound is heard.	The SPEAKERS switches are released outward to the "OFF" position.	Press them inward to the "ON" position.
	The speaker level controls are set all the way to the "∞" position.	Turn them clockwise.
	The speaker systems are not properly connected to this unit.	Connect them properly.
	An audio cable is not properly connected from the control amplifier.	Connect it properly.
No sound is heard from the left and/or right speaker systems.	One of the speaker level controls is set to the fully counterclockwise position.	Turn that speaker level control clockwise.
	An audio cable is not properly connected from the control amplifier.	Connect it properly.
The acoustic "image" is unstable, characterized by unnatural sound and insufficient low-range tonal quality.	The positive (+) and negative (–) polarities (of this unit and the speaker systems) are not matched.	Reconnect the speaker systems to this unit so that the polarities are aligned.
Hum noise is heard from the speakers.	An audio cable is not properly connected from the control amplifier.	Connect it properly.

SPECIFICATIONS

Minimum RMS Output Power per Channel (20 Hz–20 kHz)
 0.012% THD, 8 ohms 80W
 0.03% THD, 6 ohms 95W
Dynamic Power per Channel
 8/6/4/2 ohms 135/160/200/230W
Dynamic Headroom
 8/6 ohms 2.27/2.26 dB
Power Band Width
 0.03% THD, 40W/8 ohms 10 Hz–50 kHz
Damping Factor (1 kHz, 8 ohm) 250
Input Sensitivity/Impedance 0.94V/25 k-ohms
Frequency Response (20 Hz– 20 kHz) 0 ± 0.5 dB
Signal-to-Noise Ratio (IHF-A-Network)
 Input Shorted 123 dB
 Residual Noise (IHF-A-Network) 16 µV

Channel Separation (Vol. –30 dB, Input Shorted)
 1/10 kHz 65/50 dB
Power Supply AC 120V, 60 Hz
Power Consumption 200W
AC Outlet (Unswitched x 1) 200W max.
Dimensions (W x H x D) 435 x 150 x 382.5 mm
 (17-1/8" x 5-7/8" x 15-1/16")
Weight 9.7 kg (21 lbs. 5 oz.)

* Please note that the design and all specifications are subject to change without notice.

YAMAHA

YAMAHA ELECTRONICS CORPORATION, USA 6660 ORANGETHORPE AVE., BUENA PARK, CALIF. 90620, U.S.A.
YAMAHA CANADA MUSIC LTD. 135 MILNER AVE., SCARBOROUGH, ONTARIO M1S 3R1, CANADA
YAMAHA ELECTRONIK EUROPA G.m.b.H. SIEMENSSTR. 22-34, D-2084 RELLINGEN BEI HAMBURG, F.R. OF GERMANY
YAMAHA ELECTRONIQUE FRANCE S.A. 17 RUE DES CAMPANULES, LOGNES 77321 MARNE LA VALLEE CEDEX 2, FRANCE
YAMAHA ELECTRONICS (UK) LTD. YAMAHA HOUSE, 200 RICKMANSWORTH ROAD WATFORD, HERTS WD1 7LS, ENGLAND

YAMAHA CORPORATION